WesVar Analysis Example Replication C8

WesVar 5.1 is primarily a point and click application and though a text file of commands can be used in the WesVar (V5.1) batch processing environment, all examples presented here use the GUI method. For more information on the batch processing approach, see the WesVar documentation addendum for V5.1.

Due to use of GUI method, no syntax is presented prior to results. Typically, WesVar results and setups are stored in WesVar workbooks. The analysis example replication documents include selected parts of the workbook output to highlight key results. For more on additional outputs and program features, see the WesVar documentation.

Output WesVar Analysis Example Replication C8

Example 8.1 Bivariate Testing of Predictors of Major Depressive Episode (MDE)

```
WESVAR VERSION NUMBER :       v5.1.18
 TIME THE JOB EXECUTED :      13:11:08 07/02/2017
 INPUT DATASET NAME :  P:\ASDA 2\Data sets\NCSR\ncsr_sub_5apr2017_p2.var
 TIME THE INPUT DATASET CREATED :     11:51:21 07/02/2017
 FULL SAMPLE WEIGHT :  NCSRWTLG
 REPLICATE WEIGHTS :   RPL01...RPL42
 VARIANCE ESTIMATION METHOD : JK2

 TYPE OF ANALYSIS :    LOGISTIC
 CONVERGENCE CRITERION :      1e-06
 MAXIMUM NUMBER OF ITERATIONS :       25
 VALUE OF ALPHA (CONFIDENCE LEVEL %) :       0.05000 (95.00000 %)
 OPTION OUTPUT REPLICATE COEFFICIENTS :      OFF
 OPTION OUTPUT ITERATION HISTORY :    OFF

 MODEL(S):     mde = ag4cat[4]
       mde = ag4cat.2  ag4cat.3  ag4cat.4
       mde = sex.1
       mde = ald.1
       mde = ed4cat.2  ed4cat.3  ed4cat.4
       mde = ed4cat.2  ed4cat.3  ed4cat.4
       mde = mar3cat.2  mar3cat.3

 NUMBER OF REPLICATES :       42
 NUMBER OF OBSERVATIONS READ :        5692
 WEIGHTED NUMBER OF OBSERVATIONS READ :      5692.000

 MODEL :       mde = ag4cat[4]
  Class Variable Index :
       ag4cat.1 : 1
       ag4cat.2 : 2
       ag4cat.3 : 3
       ag4cat.4 : 4

 MODEL :       mde = ag4cat.2  ag4cat.3  ag4cat.4
  Class Variable Index :
```

```
      ag4cat.1 : 1
      ag4cat.2 : 2
      ag4cat.3 : 3
      ag4cat.4 : 4

MODEL :       mde = sex.1
 Class Variable Index :
      SEX.1 : 1
      SEX.2 : 2

MODEL :       mde = ald.1
 Class Variable Index :
      ald.1 : 0
      ald.2 : 1

MODEL :       mde = ed4cat.2  ed4cat.3  ed4cat.4
 Class Variable Index :
      ED4CAT.1 : 1
      ED4CAT.2 : 2
      ED4CAT.3 : 3
      ED4CAT.4 : 4

MODEL :       mde = ed4cat.2  ed4cat.3  ed4cat.4
 Class Variable Index :
      ED4CAT.1 : 1
      ED4CAT.2 : 2
      ED4CAT.3 : 3
      ED4CAT.4 : 4

MODEL :       mde = mar3cat.2  mar3cat.3
 Class Variable Index :
      MAR3CAT.1 : 1
      MAR3CAT.2 : 2
      MAR3CAT.3 : 3
```

Age

TEST	F VALUE	NUM. DF	DENOM. DF	PROB>F
OVERALL FIT	19.270	3	40	0.000
ag4cat.2	13.638	1	42	0.001
ag4cat.3	7.141	1	42	0.011
ag4cat.4	30.712	1	42	0.000
TEST1	19.270	3	40	0.000

Alcohol Dependence

TEST	F VALUE	NUM. DF	DENOM. DF	PROB>F
OVERALL FIT	109.470	1	42	0.000
ald.1	109.470	1	42	0.000

Gender

TEST	F VALUE	NUM. DF	DENOM. DF	PROB>F
OVERALL FIT	45.093	1	42	0.000
sex.1	45.093	1	42	0.000

Education

TEST	F VALUE	NUM. DF	DENOM. DF	PROB>F
OVERALL FIT	3.852	3	40	0.016
ed4cat.2	3.231	1	42	0.079
ed4cat.3	11.898	1	42	0.001
ed4cat.4	5.197	1	42	0.028
TEST1	3.852	3	40	0.016

Marital Status

TEST	F VALUE	NUM. DF	DENOM. DF	PROB>F
OVERALL FIT	13.990	2	41	0.000
mar3cat.2	28.663	1	42	0.000
mar3cat.3	2.117	1	42	0.153
TEST1	13.990	2	41	0.000

Proportions with MDE by Gender, ALD, Age, Marital Status, and Education

SEX	mde	STATISTIC	EST_TYPE	ESTIMATE	STDERROR	LOWER 95%	UPPER 95%	CV(%)	CELL_n	DENOM_n	DEFF
1	0	SUM_WTS	ROWPCT	84.711	0.907	82.880	86.542	1.071	1779	2382	1.514
1	1	SUM_WTS	ROWPCT	15.289	0.907	13.458	17.120	5.934	603	2382	1.514
1	MARGINAL	SUM_WTS	ROWPCT	100.000	0.000	.	.	0.000	2382	2382	.
2	0	SUM_WTS	ROWPCT	77.383	0.674	76.023	78.743	0.871	2117	3310	0.858
2	1	SUM_WTS	ROWPCT	22.617	0.674	21.257	23.977	2.979	1193	3310	0.858
2	MARGINAL	SUM_WTS	ROWPCT	100.000	0.000	.	.	0.000	3310	3310	.
ald	mde	STATISTIC	EST_TYPE	ESTIMATE	STDERROR	LOWER 95%	UPPER 95%	CV(%)	CELL_n	DENOM_n	DEFF
0	0	SUM_WTS	ROWPCT	82.309	0.645	81.006	83.611	0.784	3664	5249	1.502
0	1	SUM_WTS	ROWPCT	17.691	0.645	16.389	18.994	3.648	1585	5249	1.502
0	MARGINAL	SUM_WTS	ROWPCT	100.000	0.000	.	.	0.000	5249	5249	.
1	0	SUM_WTS	ROWPCT	54.841	2.879	49.031	60.651	5.250	232	443	1.483
1	1	SUM_WTS	ROWPCT	45.159	2.879	39.349	50.969	6.376	211	443	1.483
1	MARGINAL	SUM_WTS	ROWPCT	100.000	0.000	.	.	0.000	443	443	.
ag4cat	mde	STATISTIC	EST_TYPE	ESTIMATE	STDERROR	LOWER 95%	UPPER 95%	CV(%)	CELL_n	DENOM_n	DEFF
1	0	SUM_WTS	ROWPCT	81.601	0.888	79.810	83.393	1.088	974	1371	0.720
1	1	SUM_WTS	ROWPCT	18.399	0.888	16.607	20.190	4.825	397	1371	0.720
1	MARGINAL	SUM_WTS	ROWPCT	100.000	0.000	.	.	0.000	1371	1371	.
2	0	SUM_WTS	ROWPCT	77.123	1.105	74.894	79.353	1.432	1176	1826	1.263
2	1	SUM_WTS	ROWPCT	22.877	1.105	20.647	25.106	4.828	650	1826	1.263
2	MARGINAL	SUM_WTS	ROWPCT	100.000	0.000	.	.	0.000	1826	1826	.
3	0	SUM_WTS	ROWPCT	77.667	1.250	75.146	80.189	1.609	997	1521	1.369
3	1	SUM_WTS	ROWPCT	22.333	1.250	19.811	24.854	5.595	524	1521	1.369
3	MARGINAL	SUM_WTS	ROWPCT	100.000	0.000	.	.	0.000	1521	1521	.
4	0	SUM_WTS	ROWPCT	88.939	0.958	87.007	90.872	1.077	749	974	0.908
4	1	SUM_WTS	ROWPCT	11.061	0.958	9.128	12.993	8.657	225	974	0.908
4	MARGINAL	SUM_WTS	ROWPCT	100.000	0.000	.	.	0.000	974	974	.
MAR3CAT	mde	STATISTIC	EST_TYPE	ESTIMATE	STDERROR	LOWER 95%	UPPER 95%	CV(%)	CELL_n	DENOM_n	DEFF
1	0	SUM_WTS	ROWPCT	82.674	0.734	81.193	84.155	0.888	2316	3236	1.217
1	1	SUM_WTS	ROWPCT	17.326	0.734	15.845	18.807	4.236	920	3236	1.217
1	MARGINAL	SUM_WTS	ROWPCT	100.000	0.000	.	.	0.000	3236	3236	.
2	0	SUM_WTS	ROWPCT	76.098	1.448	73.176	79.020	1.902	750	1239	1.428
2	1	SUM_WTS	ROWPCT	23.902	1.448	20.980	26.824	6.057	489	1239	1.428
2	MARGINAL	SUM_WTS	ROWPCT	100.000	0.000	.	.	0.000	1239	1239	.
3	0	SUM_WTS	ROWPCT	80.601	1.154	78.271	82.930	1.432	830	1217	1.037
3	1	SUM_WTS	ROWPCT	19.399	1.154	17.070	21.729	5.950	387	1217	1.037
3	MARGINAL	SUM_WTS	ROWPCT	100.000	0.000	.	.	0.000	1217	1217	.

ED4CAT	mde	STATISTIC	EST_TYPE	ESTIMATE	STDERROR	LOWER 95%	UPPER 95%	CV(%)	CELL_n	DENOM_n	DEFF
1	0	SUM_WTS	ROWPCT	83.692	1.198	81.274	86.110	1.432	613	849	0.893
1	1	SUM_WTS	ROWPCT	16.308	1.198	13.890	18.726	7.347	236	849	0.893
1	MARGINAL	SUM_WTS	ROWPCT	100.000	0.000	.	.	0.000	849	849	.
2	0	SUM_WTS	ROWPCT	81.450	0.829	79.777	83.124	1.018	1177	1712	0.779
2	1	SUM_WTS	ROWPCT	18.550	0.829	16.876	20.223	4.471	535	1712	0.779
2	MARGINAL	SUM_WTS	ROWPCT	100.000	0.000	.	.	0.000	1712	1712	.
3	0	SUM_WTS	ROWPCT	78.751	1.046	76.640	80.863	1.329	1139	1709	1.118
3	1	SUM_WTS	ROWPCT	21.249	1.046	19.137	23.360	4.925	570	1709	1.118
3	MARGINAL	SUM_WTS	ROWPCT	100.000	0.000	.	.	0.000	1709	1709	.
4	0	SUM_WTS	ROWPCT	80.333	1.097	78.119	82.546	1.365	967	1422	1.083
4	1	SUM_WTS	ROWPCT	19.667	1.097	17.454	21.881	5.576	455	1422	1.083
4	MARGINAL	SUM_WTS	ROWPCT	100.000	0.000	.	.	0.000	1422	1422	.

Example 8.1 Model Estimation

```
WESVAR VERSION NUMBER :       v5.1.18
 TIME THE JOB EXECUTED :      13:13:49 07/02/2017
 INPUT DATASET NAME :  P:\ASDA 2\Data sets\NCSR\ncsr_sub_5apr2017_p2_r.var
 TIME THE INPUT DATASET CREATED :     12:07:13 07/02/2017
 FULL SAMPLE WEIGHT :  NCSRWTLG
 REPLICATE WEIGHTS :   RPL01...RPL42
 VARIANCE ESTIMATION METHOD : JK2

 TYPE OF ANALYSIS :    LOGISTIC
 CONVERGENCE CRITERION :      1e-06
 MAXIMUM NUMBER OF ITERATIONS :       25
 VALUE OF ALPHA (CONFIDENCE LEVEL %) :       0.05000 (95.00000 %)
 OPTION OUTPUT REPLICATE COEFFICIENTS :      OFF
 OPTION OUTPUT ITERATION HISTORY :    OFF

 MODEL(S):     mde = ag4cat.2 ag4cat.3 ag4cat.4 sex.1 ald.1 ed4cat.2 ed4cat.3 ed4cat.4 mar3cat.2 mar3cat.3

 NUMBER OF REPLICATES :       42
 NUMBER OF OBSERVATIONS READ :       5692
 WEIGHTED NUMBER OF OBSERVATIONS READ :      5692.000

 MODEL :       mde = ag4cat.2 ag4cat.3 ag4cat.4 sex.1 ald.1 ed4cat.2 ed4cat.3 ed4cat.4 mar3cat.2 mar3cat.3
  Class Variable Index :
       ag4cat.1 : 1
       ag4cat.2 : 2
       ag4cat.3 : 3
       ag4cat.4 : 4
       SEX.1 : 1
       SEX.2 : 2
       ald.1 : 0
       ald.2 : 1
       ED4CAT.1 : 1
       ED4CAT.2 : 2
       ED4CAT.3 : 3
       ED4CAT.4 : 4
       MAR3CAT.1 : 1
       MAR3CAT.2 : 2
       MAR3CAT.3 : 3
```

ED4CAT	mde	STATISTIC	EST_TYPE	ESTIMATE	STDERROR	LOWER 95%	UPPER 95%	CV(%)	CELL_n	DENOM_n	DEFF
1	0	SUM_WTS	ROWPCT	83.692	1.198	81.274	86.110	1.432	613	849	0.893
1	1	SUM_WTS	ROWPCT	16.308	1.198	13.890	18.726	7.347	236	849	0.893
1	MARGINAL	SUM_WTS	ROWPCT	100.000	0.000	.	.	0.000	849	849	.
2	0	SUM_WTS	ROWPCT	81.450	0.829	79.777	83.124	1.018	1177	1712	0.779
2	1	SUM_WTS	ROWPCT	18.550	0.829	16.876	20.223	4.471	535	1712	0.779
2	MARGINAL	SUM_WTS	ROWPCT	100.000	0.000	.	.	0.000	1712	1712	.
3	0	SUM_WTS	ROWPCT	78.751	1.046	76.640	80.863	1.329	1139	1709	1.118
3	1	SUM_WTS	ROWPCT	21.249	1.046	19.137	23.360	4.925	570	1709	1.118
3	MARGINAL	SUM_WTS	ROWPCT	100.000	0.000	.	.	0.000	1709	1709	.
4	0	SUM_WTS	ROWPCT	80.333	1.097	78.119	82.546	1.365	967	1422	1.083
4	1	SUM_WTS	ROWPCT	19.667	1.097	17.454	21.881	5.576	455	1422	1.083
4	MARGINAL	SUM_WTS	ROWPCT	100.000	0.000	.	.	0.000	1422	1422	.

TEST	F VALUE	NUM. DF	DENOM. DF	PROB>F
OVERALL FIT	28.707	10	33	0.000
ag4cat.2	7.275	1	42	0.010
ag4cat.3	5.111	1	42	0.029
ag4cat.4	22.666	1	42	0.000
sex.1	58.025	1	42	0.000
ald.1	90.084	1	42	0.000
ed4cat.2	0.710	1	42	0.404
ed4cat.3	6.247	1	42	0.016
ed4cat.4	2.208	1	42	0.145
mar3cat.2	32.396	1	42	0.000
mar3cat.3	1.154	1	42	0.289

Age	18.956	3	40	0.000
Education	2.137	3	40	0.111
Marital Status	16.643	2	41	0.000

PARAMETER	ESTIMATE	LOWER 95%	UPPER 95%
ag4cat.2	1.291	1.066	1.563
ag4cat.3	1.229	1.022	1.478
ag4cat.4	0.509	0.382	0.678
sex.1	0.561	0.482	0.654
ald.1	0.241	0.178	0.326
ed4cat.2	1.082	0.895	1.309
ed4cat.3	1.259	1.045	1.517
ed4cat.4	1.177	0.943	1.468
mar3cat.2	1.626	1.369	1.933
mar3cat.3	1.123	0.903	1.395

Example 8.1 Interaction Tests of Each Model Predictor X Sex

```
WESVAR VERSION NUMBER :       v5.1.18
 TIME THE JOB EXECUTED :      12:28:17 07/02/2017
 INPUT DATASET NAME :  P:\ASDA 2\Data sets\NCSR\ncsr_sub_5apr2017_p2_r.var
 TIME THE INPUT DATASET CREATED :     12:07:13 07/02/2017
 FULL SAMPLE WEIGHT :  NCSRWTLG
 REPLICATE WEIGHTS :   RPL01...RPL42
 VARIANCE ESTIMATION METHOD : JK2

 TYPE OF ANALYSIS :    LOGISTIC
 CONVERGENCE CRITERION :      1e-06
 MAXIMUM NUMBER OF ITERATIONS :      25
 VALUE OF ALPHA (CONFIDENCE LEVEL %) :       0.05000 (95.00000 %)
 OPTION OUTPUT REPLICATE COEFFICIENTS :      OFF
 OPTION OUTPUT ITERATION HISTORY :    OFF

 MODEL(S):     mde = r_ag4f[4]  sexm  ald  r_ed[4]  r_mar[3]  r_ag4f[4] * sexm  ald * sexm  r_ed[4] * sexm  r_mar[3] * sexm

 NUMBER OF REPLICATES :       42
 NUMBER OF OBSERVATIONS READ :       5692
 WEIGHTED NUMBER OF OBSERVATIONS READ :      5692.000

 MODEL :       mde = r_ag4f[4]  sexm  ald  r_ed[4]  r_mar[3]  r_ag4f[4] * sexm  ald * sexm  r_ed[4] * sexm  r_mar[3] * sexm
  Class Variable Index :
       r_ag4f.1 : 1
       r_ag4f.2 : 2
       r_ag4f.3 : 3
       r_ag4f.4 : 4
       r_ed.1 : 1
       r_ed.2 : 2
       r_ed.3 : 3
       r_ed.4 : 4
       r_mar.1 : 1
       r_mar.2 : 2
       r_mar.3 : 3
```

	PARAMETER	STANDARD ERROR	TEST FOR H0:			
PARAMETER	ESTIMATE	OF ESTIMATE	PARAMETER=0	PROB>|T|	LOWER 95%	UPPER 95%
INTERCEPT	-1.600	0.134	-11.984	0.000	-1.869	-1.330
r_ag4f.1	-0.646	0.176	-3.675	0.001	-1.000	-0.291
r_ag4f.2	0.215	0.101	2.120	0.040	0.010	0.419
r_ag4f.3	0.220	0.114	1.931	0.060	-0.010	0.451
sexm	-0.546	0.345	-1.584	0.121	-1.242	0.150
ald	1.553	0.208	7.461	0.000	1.133	1.973
r_ed.1	0.242	0.153	1.582	0.121	-0.067	0.551
r_ed.2	0.297	0.118	2.530	0.015	0.060	0.535
r_ed.3	0.131	0.084	1.555	0.127	-0.039	0.300
r_mar.1	0.017	0.129	0.134	0.894	-0.244	0.278
r_mar.2	0.418	0.111	3.770	0.001	0.194	0.641
r_ag4f.1*sexm	-0.038	0.302	-0.125	0.901	-0.646	0.571
r_ag4f.2*sexm	0.003	0.212	0.012	0.990	-0.426	0.431
r_ag4f.3*sexm	0.097	0.201	0.481	0.633	-0.309	0.502
ald*sexm	-0.200	0.240	-0.835	0.409	-0.685	0.284
r_ed.1*sexm	-0.194	0.334	-0.581	0.564	-0.868	0.480
r_ed.2*sexm	-0.169	0.261	-0.647	0.521	-0.695	0.357
r_ed.3*sexm	-0.138	0.262	-0.525	0.602	-0.667	0.392
r_mar.1*sexm	0.232	0.213	1.089	0.282	-0.198	0.662
r_mar.2*sexm	0.183	0.204	0.893	0.377	-0.230	0.595
TEST	F VALUE	NUM. DF	DENOM. DF	PROB>F		
OVERALL FIT	17.378	19	24	0.000		
r_ag4f[4]	12.859	3	40	0.000		
sexm	29.077	1	42	0.000		
ald	55.673	1	42	0.000		
r_ed[4]	2.227	3	40	0.100		
r_mar[3]	7.006	2	41	0.002		
r_ag4f[4]*sexm	0.249	3	40	0.861		
ald*sexm	0.697	1	42	0.409		
r_ed[4]*sexm	0.134	3	40	0.939		
r_mar[3]*sexm	0.774	2	41	0.468		
Age X sex	0.249	3	40	0.861		
ald x sex	0.697	1	42	0.409		
Ed X Sex	0.134	3	40	0.939		
Marital X Sex	0.774	2	41	0.468		

Note: Custom Tests are redundant here but shown as demonstration.

NOTE: Regression plots and diagnostics are not available in WesVar.

Example 8.2 Comparing Logit, Probit and CLOGLOG models
Logit Model Predicting Alcohol Dependence (ALD) by Age, Sex, Education, and Marital Status

```
 WESVAR VERSION NUMBER :      v5.1.18
 TIME THE JOB EXECUTED :      13:26:27 07/02/2017
 INPUT DATASET NAME :  P:\ASDA 2\Data sets\NCSR\ncsr_sub_5apr2017_p2_r.var
 TIME THE INPUT DATASET CREATED :    12:07:13 07/02/2017
 FULL SAMPLE WEIGHT :  NCSRWTLG
 REPLICATE WEIGHTS :   RPL01...RPL42
 VARIANCE ESTIMATION METHOD : JK2

 TYPE OF ANALYSIS :    LOGISTIC
 CONVERGENCE CRITERION :      1e-06
 MAXIMUM NUMBER OF ITERATIONS :      25
 VALUE OF ALPHA (CONFIDENCE LEVEL %) :       0.05000 (95.00000 %)
 OPTION OUTPUT REPLICATE COEFFICIENTS :      OFF
 OPTION OUTPUT ITERATION HISTORY :    OFF

 MODEL(S):     ald = r_ag4f[4]  sexm  r_ed[4]  r_mar[3]
 NUMBER OF REPLICATES :       42
 NUMBER OF OBSERVATIONS READ :       5692
 WEIGHTED NUMBER OF OBSERVATIONS READ :      5692.000
  MODEL :      ald = r_ag4f[4]  sexm  r_ed[4]  r_mar[3]
  Class Variable Index :
       r_ag4f.1 : 1
       r_ag4f.2 : 2
       r_ag4f.3 : 3
       r_ag4f.4 : 4
       r_ed.1 : 1
       r_ed.2 : 2
       r_ed.3 : 3
       r_ed.4 : 4
       r_mar.1 : 1
       r_mar.2 : 2
       r_mar.3 : 3
```

	PARAMETER	STANDARD ERROR	TEST FOR H0:			
PARAMETER	ESTIMATE	OF ESTIMATE	PARAMETER=0	PROB>|T|	LOWER 95%	UPPER 95%
INTERCEPT	-3.124	0.223	-13.982	0.000	-3.575	-2.673
r_ag4f.1	-1.120	0.214	-5.231	0.000	-1.553	-0.688
r_ag4f.2	-0.051	0.144	-0.352	0.727	-0.342	0.240
r_ag4f.3	0.146	0.180	0.815	0.420	-0.216	0.509
sexm	0.998	0.120	8.332	0.000	0.756	1.240
r_ed.1	-0.736	0.195	-3.784	0.000	-1.129	-0.344
r_ed.2	-0.264	0.175	-1.512	0.138	-0.617	0.088
r_ed.3	-0.268	0.189	-1.420	0.163	-0.650	0.113
r_mar.1	0.065	0.168	0.388	0.700	-0.274	0.405
r_mar.2	0.518	0.142	3.636	0.001	0.230	0.805
TEST	F VALUE	NUM. DF	DENOM. DF	PROB>F		
OVERALL FIT	23.688	9	34	0.000		
r_ag4f[4]	11.693	3	40	0.000		
sexm	69.420	1	42	0.000		
r_ed[4]	4.893	3	40	0.005		
r_mar[3]	6.505	2	41	0.004		
Marital	6.505	2	41	0.004		
Education	4.893	3	40	0.005		
Age	11.693	3	40	0.000		

NOTE: Probit and CLOGLOG models are not available in WesVar